

Commonwealth of Massachusetts
Department of Public Health
State Laboratory Institute

Policies and Procedures
Drug Analysis Laboratories
Updated September 29, 2004

Boston Laboratory
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Table of Contents

I	Introduction	3
II	Submittal of Evidence	4
III	Chain of Custody	8
IV	Analysis Procedures	10
V	Certificates Reports and Testimony	13
APPENDIX I	Mailing Procedures	15
APPENDIX II	Drug Laboratory Receipt	17
APPENDIX III	Defense Analysis Procedure	18
APPENDIX IV	Methods of Analysis	20

II. Submittal of Evidence

Authorized representatives of law enforcement agencies may submit samples to the Department of Public Health Laboratories either directly or through the mail.

1. Mailed Submittal

Only cases that will be charged as misdemeanors may be mailed to the laboratory. Cases may be submitted REGISTERED mail, by following the procedures described in APPENDIX I (MAILING PROCEDURES FOR DRUG SAMPLE SUBMISSIONS).

2. Direct Submittal

Suspected drug cases are submitted to the Jamaica Plain and Amherst Laboratories during the hours posted at each site. Police officers will show proper identification (a police I.D. and a Massachusetts drivers license) when delivering and picking up items (samples). Items will not be accepted or returned to representatives of police agencies, unless that person provides positive identification as an agent of the submitting police department.

Requirements for Submitting Suspected Drugs for Analysis

A) A completed drug receipt form (APPENDIX II) must be submitted with each case. The receipt must contain information for only one case and be clearly legible. The receipt must include the following:

- * Name of submitting agency
- * Name of submitting officer
- * The name(s) of the defendant(s) or an appropriate designation, such as "Under Investigation", should be placed in the name block of the receipt
- * Date of submittal
- * Description of item(s) submitted

B) Evidence must be separated into similar types by the submitting department, and placed into plastic bags according to the following categories:

- * Powders and Substances (substances such as cocaine base "crack")
- * Residues
- * Capsules, pills, and tablets (Pharmaceuticals)
- * Vegetable Matter
- * Others

I

INTRODUCTION

The Massachusetts Department of Public Health (DPH) provides analyses of narcotic drugs, controlled substances and certain alcoholic beverages for law enforcement agencies and appropriate organizations in the Commonwealth of Massachusetts as described in Chapter 111, Sections 11 and 12 of the Massachusetts General Laws. These services are provided at two laboratories, the Jamaica Plain Laboratory which serves Eastern Massachusetts and the Amherst Laboratory, which serves Western Massachusetts.

The analyses provided by the DPH Drug Analysis Laboratories are intended for use in law enforcement and prosecution of criminal cases. It is the responsibility of the Department to provide analyses in an accurate and timely manner and to furnish Certificates of Analysis describing the results of these analyses. These certificates are accepted as prima facie evidence in Massachusetts under Chapter 111, Section 13, of the Massachusetts General Laws. All submissions to the laboratory are kept secure and records are kept of all evidence transfers. The laboratory personnel provide analytical advice for submitting agencies and, when necessary, furnish expert testimony in court. The Department of Public Health prepares monthly and yearly reports describing the number and types of items submitted to the laboratory by each town. This data is analyzed to monitor changes in sample type, and trends in drug arrests. Assessments of important changes are communicated to the appropriate agencies. These reports are available to authorized persons in Public Health and to Law Enforcement Agencies.

Note: The Laboratory interprets the definition of a "CASE" as, all material submitted to the lab at the same time and for the same defendant(s). A case can consist of several items, also referred to as samples. Each item or sample may consist of several specimens. For example, a case submitted on 02/10/2004, consists of one bag of vegetable matter, 23 plastic bags of white powder, and one plastic vial containing a tablet. This is one case with 3 separate samples or items. The second item or sample contains 23 specimens.

7) Laboratory Control Cards will be generated from the data on the receipt, and a control card for each item will be placed in the corresponding manila envelope.

8) The envelope will be stored in the laboratory evidence safe until it is assigned to a chemist.

9) After completing analysis, the chemist will seal the evidence in a plastic bag and put their identifying mark and sample number on the bag. The bag and the Certificate of Analysis for that sample will be placed in the original manila envelope and will be returned to the laboratory evidence office. It will be stored in the evidence safe until being picked up by the submitting department.

Restrictions for Sample Submittal

The following restrictions apply to items submitted for analysis to the Department of Public Health Laboratories.

1. Forensic Samples Other Than Drugs

Forensic samples other than drugs (e.g. ballistics, explosives, fingerprints, etc.) will not be accepted and should be submitted to the State Police Crime Laboratory.

2. Biologic Samples

Biologic samples such as body fluids, excreta and tissues will not be accepted by the Department of Public Health Laboratories and should be submitted to the regional Medical Examiner's Laboratory for forensic analysis.

3. Drug Samples Pertaining to Medical Examiner Investigations

Toxicological samples relating to investigations of the Medical Examiner will not be accepted and should be submitted to the regional Medical Examiner's Laboratory.

C) Items must be packaged to prevent loss of material or cross contamination.

D) Pharmaceuticals should be submitted with labels if present.

E) Liquids must be submitted in leak proof containers.

F) Hypodermic needles or other sharps should be submitted for analysis only if they are the sole item in a particular case and if there is reason to believe they contain a controlled substance. Syringes must be delivered in protective containers. Analysis of syringes will be done only after they have been autoclaved. A Certificate of Analysis stating that the needle was NOT TESTED is available if a certificate is needed for court purposes, or for destruction purposes.

G) Evidence recovered from body cavities or other hazardous areas should be marked as such, and the DPH Laboratory Evidence Officer should be notified at the time of submission.

Submittal Procedure

1) Submitting officers must alert the DPH Laboratory Evidence Officer to unusual circumstances concerning a sample (eg. Wet sample, broken glass, hazardous material).

2) The submitting officer will submit evidence to the laboratory in a sealed and initialed plastic bag.

3) The sealed evidence bag will be given to the Laboratory Evidence Officer who will weigh the evidence bag and note the gross weight on the receipt.

4) The Laboratory Evidence Officer will assign a Laboratory Evidence Control Number to the sample and record this number on the receipt along with the gross weight.

5) The sample will be placed in a manila envelope, and a bar coded sticker with the evidence control number will be affixed to the envelope.

6) The Laboratory Evidence Officer will initial and date the receipt, and give a copy of the receipt to the submitting officer. The laboratory will keep the original receipt.

III.

Chain of Custody

Written records of the chain of custody of a sample are maintained from the time the evidence is received into the laboratory through the time the evidence is returned to the submitting agency.

1) Receipts

The submitting officer must submit a completed drug receipt form (APPENDIX II) for each case submitted to the laboratory. The receipt must contain the names of the submitting agency and submitting officer, the date of sample submission and a brief description of each item of evidence submitted. The names(s) of the defendant(s) should be clearly printed or typed, Last name first, First name last, which is how the names will appear on the Certificate of Analysis. If the names are unknown, or are not provided for security reasons on the drug receipt form, the notation "Under Investigation" or other appropriate designation should be written in the defendants name block on the drug receipt form. The Certificate of Analysis will use the description provided on the drug receipt form. A copy of the receipt will be given to the submitting officer.

a. Evidence Control Number

The Laboratory Evidence Officer will assign a Laboratory Evidence Control Number for each item submitted to the DPH Laboratory. Questions or referrals regarding an item (sample) should be referenced by the evidence control number.

b. Gross Weight

The Laboratory Evidence Officer in the presence of the submitting officer will determine the gross weight of each heat sealed plastic evidence bag. This gross weight will be recorded on the drug receipt. The gross weight includes the substance, and packaging material.

4. Previously Analyzed Items

- a. Items analyzed by Forensic Laboratories other than Department of Public Health Laboratories

Items that have been analyzed by another forensic laboratory will be accepted for reanalysis only at the request of the original testing laboratory and with the approval of the Director of the DPH Drug Analysis Laboratories.

- b. Items analyzed by a Department of Public Health Laboratory

A DPH Drug Analysis Supervisor must approve requests for reanalysis, or for additional testing of samples done by a DPH laboratory. The request should be transmitted to the laboratory by mail or fax. The DPH Drug Analysis Laboratory fax numbers are Boston- (617) 983-6625, and Amherst-(413)545-2608. If a defense analysis is to be performed, the procedure described in Appendix III will be followed.

5. Improperly Packaged Items

Items that are not packaged according to the requirements of the laboratory will not be accepted. Packaging deficiencies may be remedied at the time of sample submission if possible.

6. Alcoholic Beverages.

Alcoholic beverages seized in their original sealed container are not accepted for analysis. Suspected alcoholic beverages seized in open containers may be submitted to the laboratory for analysis.

7. Vegetable Matter

Preferably, "green" plants should be allowed to dry before sealing them in plastic bags. If not dried, the plant material may decompose, and become difficult to handle and analyze. Contact the DPH Drug Analysis Laboratory (617) 983-6622 regarding submission of this type of sample.

Note: M.G.L. C. 94 S.31 states that the mature stalks of marijuana plants are not controlled. The net weight will not include root balls, rocks, flowerpots, sticks, "mature stalks" and other extraneous materials.

IV. Analysis Procedures

The Laboratory has established policies and guidelines to standardize analytical testing. These policies and guidelines aid analysts in choosing appropriate procedures for analyzing samples.

1) Sample Analysis

The Laboratory follows the recommendations of the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG) report of 2003, for the methods used in the identification of illicit drugs. Appendix IV.

2) Extent of Analysis

Many of the items (samples) submitted to the laboratory consist of large numbers of similar specimens. An example is powder in 500 glassine bags. Analysis of each specimen in a sample is not necessary in order to establish the identity of all individual specimens. Accepted forensic laboratory practice is to analyze a representative number of the specimens.

3) Timely Analysis

The goal of the Laboratory is to complete analysis of most samples, on average, within one month of the date submitted to the laboratory. Certain types of samples may require special handling and more time for analysis may be required. Wide variation in the number of samples submitted to the laboratory at certain times, and changing patterns in illicit drug seizures, result in variability of time needed to complete analysis.

4) Quantitation (Assay)

Quantitation is the measurement of the percentage of controlled substance present in a sample. Quantitations are done routinely for Tetrahydrocannabinol (THC) samples with a net weight greater than 1.0 gram, and for alcoholic beverage samples. A quantitative analysis for cocaine or heroin samples will be done upon request from a District Attorney's Office.

c. Changes

Occasionally the evidence description printed on the Certificate of Analysis will differ from the description on the drug receipt. This will occur when the analyst opens an evidence bag and finds something that was not properly described on the receipt. For example, if a sample described as containing 22 plastic bags actually contains 22 paper packets, the description will be changed.

2) Evidence Transfers

A record is kept of all transfers of evidence within the laboratory, as well as all transfers between the laboratory and the submitting agency.

NOT TESTED. If the analysis of all items submitted in a case are essential to the prosecution of that case, the District Attorney's Office may request that the NOT TESTED items be resubmitted to the laboratory for analysis.

d) Samples Without Law Enforcement Value

Samples that are likely to be superfluous, such as residue on paraphernalia in the presence of a powder sample which has tested positive for a controlled substance, will be reported as NOT TESTED. If the item is essential to the prosecution of the case, the District Attorney's Office may request that the item be resubmitted for analysis.

7) Sample Resubmission

The Laboratory Supervisor will be notified of all sample resubmissions.

A) Additional Testing

Requests for additional testing must be approved by the Supervisor of the Drug Analysis Laboratory, or their designee. Opening sealed samples will be done by the original analyst, or the Laboratory Supervisor if the original analyst is not available. The analyst will do a gross examination of the evidence bag prior to opening, and note its condition, relative to the evidence record on their analysis sheet. If a discrepancy is found in the condition of the evidence bag, it will not be opened and the Laboratory Supervisor will be notified.

B) Evidence Control Numbers for Resubmittals

Samples returned to the laboratory for additional testing will be assigned a new evidence control number, which will be the original evidence control number plus R (e.g. Specimen # 123456 resubmitted for additional testing will be given the new control # 123456R).

8) Defense Analysis

A defense attorney may request, by means of a court order, an analysis by a defense chemist of evidence tested by the Public Health Drug Analysis Laboratory. The procedure for a defense analysis is described in APPENDIX III.

5) Visual Identification

A chemical analysis may not always be necessary for the identification of certain types of samples. Pharmaceuticals manufactured by licensed manufacturers carry identifying imprints or markings. Clearly labeled pills, tablets, capsules, and other forms of pharmaceuticals, may be identified visually (ballistically). This method will not be used if there is ambiguity in the identification markings or if counterfeiting or tampering is suspected. A chemical analysis will be performed on these types of samples. The Certificate of Analysis for ballistically identified samples will state that the sample was identified by appearance and labeling. NOTE: The laboratory will provide a chemical analysis of any sample at the request of a District Attorney's Office.

6) Items (Samples) Not Tested

The analysis of certain minor items may be of little value to the prosecution of a case when a positive result has been determined for other more significant items in that case. Such items will be returned NOT TESTED. Examples:

a) Redundant Residue ITEMS (SAMPLES)

When multiple residue items (samples) are submitted for a single case, the chemist will select the item most likely to test positive and report the remaining items as NOT TESTED. If the selected item tests negative, additional items will be tested. If the analysis of NOT TESTED samples are needed for the prosecution of a case, the District Attorney's Office may request that those samples be resubmitted for analytical testing.

b) Multiple Residue SPECIMENS

When multiple residue specimens (paraphernalia) are submitted under one evidence control number, the chemist will chose a specimen most likely to test positive. If the selected specimen tests negative, another specimen will be tested.

c) Numerous Submissions of Samples of Equal or Lower Class of Controlled Substance

Cases in which a large number of items (samples) are submitted may not need every item analyzed. In these circumstances, the analyst will meet with the Laboratory Supervisor and the most significant samples of the highest classes will be chosen for analysis. Those items (samples) not analyzed will be reported as

c) Subpoenas should be sent in advance of the court date, notifying any chemist of the need to provide testimony

d) The laboratory will provide information to defense counsel through the District Attorney's Office.

4. Records

Laboratory analytical data and custody records will be stored for 10 (ten) years from the date generated.

V.

CERTIFICATES, REPORTS, EXPERT TESTIMONY, AND ADVICE

1. Certificate of Analysis

Chapter 111, Section 13 of the Massachusetts General Laws states that properly executed Certificates of Analysis of the Department of Public Health are prima facie evidence in Massachusetts courts. Certificates of Analysis are provided for all samples submitted to the Drug Analysis Laboratory.

2. Reports

The Public Health Drug Analysis Laboratory provides monthly and yearly reports of submissions to the drug analysis laboratories. The reports include the number and type of drug items submitted and analyzed.

3. Testimony

Since Certificates of Analysis are accepted as prima facie evidence in the courts of Massachusetts, the need for direct testimony of an analyst should be infrequent. In cases where an analyst is required to testify, certain conditions should be sought.

a) The prosecutor should notify the analyst as far in advance as possible, and provide the laboratory certificate (evidence control) number(s) in question, so that records may be retrieved. Any specific issue that will require the testimony of a chemist should also be described.

b) Due to the demands on the laboratory, it is imperative that each analyst be away from the laboratory bench for as short a time as possible. If providing records related to the analysis is not sufficient, and the analyst is needed to testify, the prosecutor should arrange with the court, that the analyst spend the least amount of time that is necessary in court. Often having analysts "on call" will suffice. In most instances, analysts can be in court within an hour of being notified.

4. Place a completed Drug Receipt Form (APPENDIX II) in the shipping container.

* Receipt will be filled out as described in Section II-A

5. Wrap and seal the carton securely and mark it as "FRAGILE".
6. Address the package to the Evidence Officer of the Laboratory in your area.
7. Improperly packaged samples will be returned without analysis.
8. Numerous or large samples should be submitted personally by an official representative of the submitting agency.

C. Regional Public Health Drug Analysis Laboratories

Eastern Massachusetts

Evidence Officer
Drug Laboratory
State Laboratory Institute
305 South Street
Jamaica Plain, MA 02130
(617) 983-6622

Western Massachusetts

Evidence Officer
Drug Laboratory
Western Massachusetts Public Health Center
Stockbridge Road
Amherst, MA 01002
(413) 545-2601

APPENDIX I

Mailing procedures for Drug Sample Submissions

A. Instructions for Submitting Samples by Mail

1. Only MISDEMEANOR case samples may be submitted to laboratory by mail. Such samples must be sent by the U.S. Postal Service as REGISTERED mail. Samples received by any other mailing type such as certified mail, will be returned unopened via registered mail at the submitting agency's expense. Felony case samples must be submitted personally by an official representative of the submitting agency.
2. Make all mailings to the Evidence Officer in your area.
3. Furnish names of defendants, if known.
4. Report information that may be pertinent to the laboratory examination.
5. Reference previous correspondence on the case, if any.
6. Establish a petty cash account in a minimum amount of \$25.00 with the Drug Laboratory Evidence Office, to provide for return postage.
7. Return postage may be omitted if a representative of the submitting agency will pick up the analyzed sample. The laboratory should be notified in advance if the completed sample is to be picked up by a representative of the submitting agency.

B. How to Prepare Evidence for Shipment

1. Samples MUST be submitted by REGISTERED MAIL only.
2. Package the evidence carefully. Use suitable containers; such as, pillboxes, plastic bags, glass or plastic containers, etc. Liquids must be packaged in leak proof containers. Each sample should be packaged separately to avoid possible contamination. Label the outside of the package with the submitting agency name. Seal the container with tape.
3. Enclose the containers securely in a strong outer carton or envelope suitable for shipping.

Defense Analysis Procedure for the Massachusetts Department of Public Health
Drug Analysis Laboratory

1. Court Order

2. Licensed Analysts

3. Evidence Transfers

The Supervisor of the Drug Analysis Laboratory should confer with the District Attorney or his/ her representative on what tests the defense chemist will perform. The amount of sample needed will depend on the amount of sample available and the type of analysis to be performed. If possible, the analyst of record for the sample should be present to open the evidence bag for sampling. The Laboratory Supervisor will provide the defense analyst with an agreed upon amount of sample and the defense chemist must sign a receipt indicating that they have received such sample.

Amherst Hours
9:00 – 12:00
1:00 – 4:00

Description of Samples	To be completed by Lab Personnel Gross Weight	Lab Number

id by:

Date:

APPENDIX IV*

Recommendations of the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG): Report of 2003

SWGDRUG Methods of Analysis

Methods of Analysis/Drug Identification

Section 1 Introduction

The purpose of Part III B* is to recommend minimum standards for the forensic identification of commonly seized drugs. It is recognized that the correct identification of a drug or chemical depends on the use of an analytical scheme based on validated methods and the competence of the analyst. SWGDRUG requires the use of multiple uncorrelated techniques. It does not discourage the use of any particular method within an analytical scheme and it is accepted that unique requirements in different jurisdictions may dictate the actual practices followed by a particular laboratory.

Section 2 Categorizing Analytical Techniques

2.1 Techniques for the analysis of drug samples may be classified into three categories based on their discriminating power. Table 1 provides examples of these techniques listed in order of decreasing discriminating power from A to C.

Category A	Category B	Category C
Infrared Spectroscopy	Capillary Electrophoresis	Color Tests
Mass Spectrometry	Gas Chromatography	Fluorescence Spectroscopy
Nuclear Magnetic Resonance Spectroscopy	Ion Mobility Spectrometry	Immunoassay
Raman Spectroscopy	Liquid Chromatography	Melting Point
	Microcrystalline Tests	Ultraviolet Spectroscopy
	Pharmaceutical Identifiers	
	Thin Layer Chromatography	
	Cannabis only: Macroscopic Examination Microscopic Examination	

*Part III B refers to the October 2003 report of the SWGDRUG committee

4. Unused Sample

The unused portion of any sample taken for defense analysis must be returned to the Drug Analysis Laboratory bearing the appropriate laboratory evidence number and marked "Defense Analysis Sample". If multiple samples have been taken by a defense chemist, the samples must not be commingled

5) Equipment

Due to security, liability, and safety issues, the Department of Public Health will not provide any equipment for use by a defense analyst. The defense analyst must provide his/ her own equipment and analytical instrumentation for examination of a sample.

B) Defense analyst re-weighings of samples previously analyzed.

A defense chemist may come to one of the Department of Public Health Laboratories to reweigh a sample provided that they have a court order allowing such action. The defense chemist and defense attorney will contact the District Attorney's Office and have the submitting agency return the sample to the laboratory. When the sample has been returned to the laboratory, a mutually agreeable time will be arranged to have the defense chemist come in to reweigh the sample. The court order will be presented at that time. A secure room will be provided where the defense chemist may perform their procedure.

No admittance to the Drug Analysis Laboratory is allowed due to security, safety, and liability issues.

Any analytical balances or equipment needed to perform a reweighing will be provided by the defense chemist. No equipment will be provided by the Department of Public Health Laboratory. NOTE: A DEA License or Public Health registration identification is not required to perform a reweighing.

3.4 In cases where hyphenated techniques are used (e.g. gas-chromatography-mass spectrometry, liquid chromatography-diode array ultraviolet spectroscopy), they will be considered as separate techniques provided that the results from each are used.

3.5 Cannabis exhibits tend to have characteristics that are visually recognizable. Macroscopic and microscopic examinations of cannabis will be considered, exceptionally, as uncorrelated techniques from category B when observations include documented details of botanical features. Additional testing must follow the scheme outlined in sections 3.1 or 3.2

3.5.1 For exhibits of cannabis that lack sufficient observable macroscopic and microscopic botanical detail (e.g. extracts or residues), Δ^9 -tetrahydrocannabinol (THC) or other cannabinoids must be identified utilizing the principles set forth in sections 3.1 and 3.2

3.6 Examples of reviewable data are

- 3.6.1 printed spectra, chromatograms and photographs or photocopies of TLC plates.
- 3.6.2 contemporaneous documented peer review for microcrystalline tests.
- 3.6.3 recording of detailed descriptions of morphological characteristics for cannabis (only).
- 3.6.4 reference to published data for pharmaceutical identifiers.

Section 4: COMMENT

These recommendations are minimum standards for the forensic identification of commonly seized drugs. However, it should be recognized that they may not be sufficient for the identification of all drugs in all circumstances. Within these recommendations, it is up to the individual laboratory's management to determine which combination of analytical techniques best satisfies the requirements of its jurisdiction.

SWGDRUG Methods of Analysis

SWGDRUG Methods of Analysis

Section 3: IDENTIFICATION CRITERIA

SWGDRUG recommends that laboratories adhere to the following minimum standards:

3.1 When a validated Category A technique is incorporated into an analytical scheme, then at least one other technique (from either Category A, B or C) must be used.

3.1.1 This combination must identify the specific drug present and must preclude a false positive identification

3.1.2 When sample size allows, the second technique should be applied on a separate sampling for quality assurance reasons. When sample size is limited, additional measures should be taken to assure that the results correspond to the correct sample.

3.1.3 All Category A techniques must have data that are reviewable.

3.2 When a Category A technique is not used, then at least three different validated methods must be employed.

3.2.1 These in combination must demonstrate the identity of the specific drug present and must preclude a false positive identification.

3.2.2 Two of the three methods must be based on uncorrelated techniques from category B.

3.2.3 A minimum of two separate samplings should be used in these three tests. When sample size is limited, additional measures should be taken to assure that the results correspond to the correct sample.

3.2.4 All Category B techniques must have reviewable data.

3.3 For the use of any method to be considered of value, test results must be considered "positive." While "negative" test results provide useful information for ruling out the presence of a particular drug or drug class, these results have no value toward establishing the forensic identification of a drug.

Massachusetts Department of Public Health
State Laboratory Institute
Drug Analysis Laboratory
305 South Street
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Policies and Procedures Document

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Drug Analysis Laboratory Director

Date 10/7/04 By Harvey Hargis, PhD
Quality Assurance Director

Date 10/7/04 By Ralph F. Jr.
State Laboratory Institute Director

Quality Assurance and Quality Control

The Drug Analysis Laboratory makes every effort to ensure that its analyses are accurate and timely. Routine Quality Control and Quality Assurance procedures are employed by the Laboratory to accomplish this. The Department of Public Health State Laboratory Institute's Quality Control and Quality Assurance Section, provides independent oversight of these QA/QC procedures to ensure that proper compliance with accepted procedures are followed.